

Notice of Allowability

Application No.

10/510,216

Applicant(s)

HASHIMOTO ET AL.

Examiner

Art Unit

Que T. Le

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to _____.
2. The allowed claim(s) is/are 1-16.
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of
Paper No./Mail Date _____.
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application (PTO-152)
6. Interview Summary (PTO-413),
Paper No./Mail Date _____
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

QUE TAN LE
PRIMARY EXAMINER

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The title of the invention has been changed to: "Light receiving device with controllable sensitivity and spatial information detecting apparatus with charge discarding device using the same".

The following is an examiner's statement of reasons for allowance: The prior art fails to teach a spatial information detecting apparatus using intensity-modulated light, among other features, comprising: at least one photoelectric converter receiving light from a space, into which a light intensity-modulated by a predetermined modulation signal is being irradiated, and generating amounts of electric charges; charge discarding means having a first electrode for removing dispensable charges from the electric charges according to a voltage applied to the electrode ; charge storage means for storing signal charges from the electric charges; a control circuit controlling the voltage applied to the electrode at a timing synchronized with a period of the modulation signal to change a ratio of the signal charges stored in the storage means to the electric charges generated by the photoelectric converter; and a charge ejector outputting the signal charges from the charge storage means. The prior art also fails to teach a spatial information detecting method using a CCD image sensor having an overflow drain electrode, among other features, comprising the steps of: storing signal charges by

repeating a charge extraction operation plural times with respect to each of different phases in a period of a predetermined modulation signal, and determining spatial information from the signal charges stored with respect to the different phases of the modulation signal, wherein the operation includes the steps of removing dispensable charges from electric charges generated by photoelectric converters of the CCD image sensor according to a control voltage applied to the electrode in synchronization with the period of the modulation signal, and storing the balance of the electric charges as the signal charges in a charge storage area of the CCD image sensor.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

I) Takada et al 6,639,656 disclose a distance measuring system comprising a demodulator unit with noise components removing operation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Que T. Le whose telephone number is (571) 272-2438.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Epps Georgia, can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Que T. Le
Primary Examiner
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